

Preserving the future by unlocking the past:

Establishing unknown baselines through Collection, Digitization, and Analysis of historical source documents for NOAA's Monterey Bay National Marine Sanctuary (MBNMS)



Salmon catch with rod and reel at Santa Cruz, Ca. 1905

The MBNMS has some of the richest history on the west coast of America due to the California Current driven upwelling ecosystem and related fisheries. Although utilization of the area encompassed by the MBNMS began centuries ago, there is no baseline to summarize the magnitude of these changes. Qualitative historic accounts and records of the abundance of marine organisms can be a useful tool to establish baselines in specific localities and assess ecological impact over time. However many historical sources that reference the marine ecosystem from particularly before the 20th Century have been for practical purposes lost and are scattered around the U.S.

Accounts from the late 18th and early 19th century that

mention multitudes of fish, abundant whales, and kelp forests full of otters are nowadays hard to believe. Through historical ecology research, we are coming to understand that this really was the way that the central California coastline naturally existed. The main initial objective of our study is, to source, collect, and digitize historical material from which biological indicators on the marine ecosystems of the MBNMS can be derived using a scientifically repeatable method. Collected data has been stored within a searchable relational database constructed in Filemaker Pro for easy access and represents a powerful tool for future analysis. Using these narratives, a secondary objective of our study is to broadly identify and describe long-term environmental changes within the

Anecdotal Historical Evidence

“But the greatest curiosity in this particular, which has been found in California, is a kind of animal exactly resembling a beaver, if not actually a species of that creature... They found such numbers of them together that the seamen killed above twenty of them, following them only with sticks. Some of the skins of these creatures the father sent to Mexico”

Earliest known recorded instance of the California Sea Otter (*Enhydra lutris*) fur trade

-Miguel Venegas, 1733

MBNMS prior to industrialized fishing.

To date over 300 sources have been uncovered and archived that include, newspaper articles, letters, journals, photos, books and manuscripts that range back in date to 1758. These include sources from major research institutions for the U.S. West Coast such as the Bancroft Library, Berkeley, CA and National Archives II, College Park, MD, and extensive visits to local libraries.

NEXT STEPS

Based on the review of available historical resources there are several source materials that can be used for further analysis to inform ecological change. This determination is based on the condition and integrity of the records, and their potential to yield information about species populations, changes affecting the populations, composition, distribution, and diversity within MBNMS and Monterey. In addition, these records explore the social, cultural, and economic consequences of overexploitation, pollution, and government regulation of marine resources. The sources will help build a historic context that will contrast and bridge observations of the marine environment made in the 17th century through to the rigorous collection of fisheries data made in the late 19th and early 20th centuries. Additionally, a detailed historic context for the period 1870-1935 will help to interpret the social, cultural, economic, political, legal, and technological factors that may have affected fish catch and landings during these times.

Future uses for these collected data are to map trends of observed abundance within the MBNMS over time, and to create an older historical baseline

of marine biodiversity and abundance. These objectives will be met by mining gathered data for anecdotal evidence of biological indicators, which are sorted using a multi level abundance coding system (Pandolfi et al. 2003; Palomares et al. 2005) to gather quantitative information on marine organisms from qualitative sources such as historical narratives.



Harpooned basking shark (Cetorhinus maximus) displayed at Del Monte Beach, Monterey, 1908

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"The roadstead of Monterey is frequented by an innumerable school of humpbacked whales which get very familiar. They come in among the ships anchored in the road where they infect the air... by the penetrating and nauseating odor which they give off."

-Capt. Abel Aubert Du petit-Thouars, 1834